Organic Approach to Home Gardening and Landscaping

Working With Nature

Organic *Mindset*

- USDA Organic
- Closed System
- IPM
- Permaculture
- Food Forest
- Conservation

What is Organic Gardening?

uses fewer inputs

gardening “naturally”

no synthetic inputs

“healthier” than conventional

environmentally friendly

What is Organic Gardening?

Gardening without synthetic inputs

Seeing the whole garden as an ecosystem

USDA ORGANIC

Why Organic?

- Reduce human exposure to pesticides; the greatest risk of exposure is to the applicator!
- Reduce potential for residues on food.
- Reduce potential risks to wildlife, pets, and the environment.
- Increase activity of naturally occurring beneficial insects and microbes.

Certified Organic Vs. Organic *Approach*

- Forms & Fees
- Timeline (36 mo. transition period)
  - Financial Incentives
- Inspections
- Record keeping
- The label (increase market value)
- Restricted pesticide & fertilizer products

- Reduced use of synthetic products
- Environmentally friendly
- Sustainability focused
- Principles can be applied to the landscape as a whole

Certified Organic Labeling: What It Does (and Doesn't) Mean

Not all "organic" labels are equal

- **100% Organic** – all ingredients organic
- **Organic** – ≥95% organic ingredients
- **Made with Organic Ingredients** – must contain at least 70% (no organic seal)

What the organic seal covers

- Regulated by the **USDA**
- Focuses on *how food is produced*
- Allows some approved inputs (not spray-free)

Common misconceptions

- Organic ≠ local, small-scale, or climate-friendly
- Imported organic is allowed; standards may vary
- Livestock "outdoor access" varies by operation
- Organic ≠ more nutritious by default

Bottom line

- **Certified Organic is meaningful—but limited.**
- Knowing the label categories leads to better choices.

Organic Gardening Principles

- Right plant/right place
- Build the soil
- Use non-synthetic inputs (i.e. fertilizer, weed control)
- Practice prevention
- Use environmentally-friendly pest interventions as needed

Commercial organic has strict rules, home gardeners have wider flexibility in how they define "organic"

Why Garden/Landscape Organically?

- Healthier food and environment
- Protects pollinators and soil life
- Builds resilient gardens over time


LAWN
BUDDIES

Soil: The Foundation

- Healthy soil = Healthy Plants
- Healthy Plants = Prevention of pest problems

- Soil organisms drive nutrient availability
- Organic matter is key

Building Soil Health

- Compost and organic matter
- Mulching
- Cover crops
- Minimal disturbance

Composting Basics

Note: Egg shells are a mineral (lime), but are OK

Compost Ingredients

Brown Material	Green Material
Mature, dry grass	Grass clippings and garden wastes
Woody materials (chips, dust)	Kitchen residuals
Bark, stalks, stems	Fruits/vegetables
Fall leaves	Most manures
Paper products (untreated)	Coffee grounds



Acceptable Organic Material - Compost Recipe:

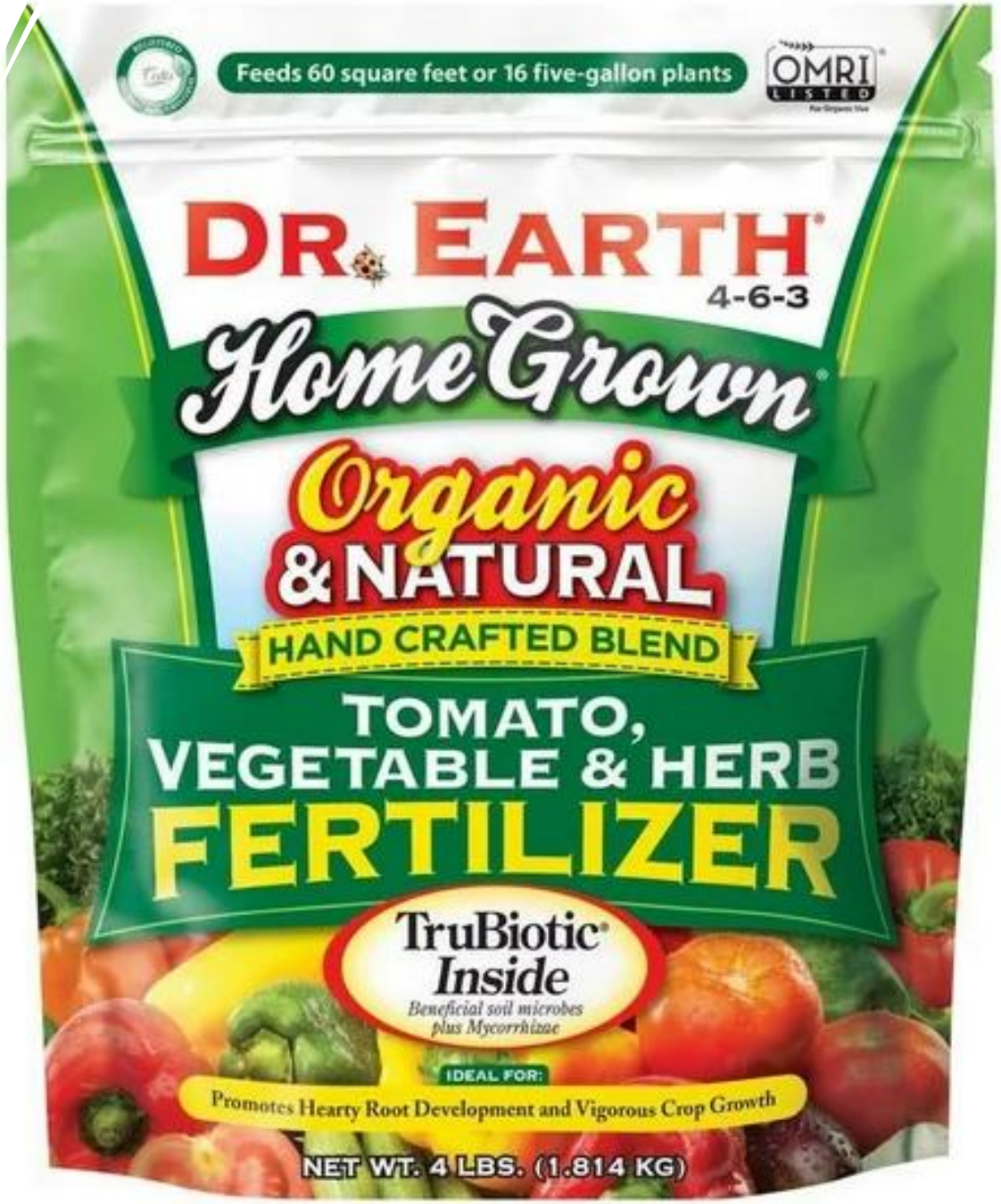
- Add equal parts (by weight) of brown and green materials
- Layer and/or mix materials well (may need to chop or shred material)
- Add water to the consistency of a wrung-out sponge
- Turn frequently (more frequent turning = faster composting) ~ once per week

Don’t Add:

- Large branches/logs
- Meat and meat by-products
- Dairy products
- Oils
- Cooked or salted food
- Manure from animals that consume meat or meat bi-products (pet waste)
- Diseased plants
- Synthetics (plastics, metals…)

Organic Fertility Practices

- Organic Matter
  - Compost
  - Manure
  - Green manures/cover crops
- Slow-release fertilizers
- Organic Fertilizer
  - Garden centers



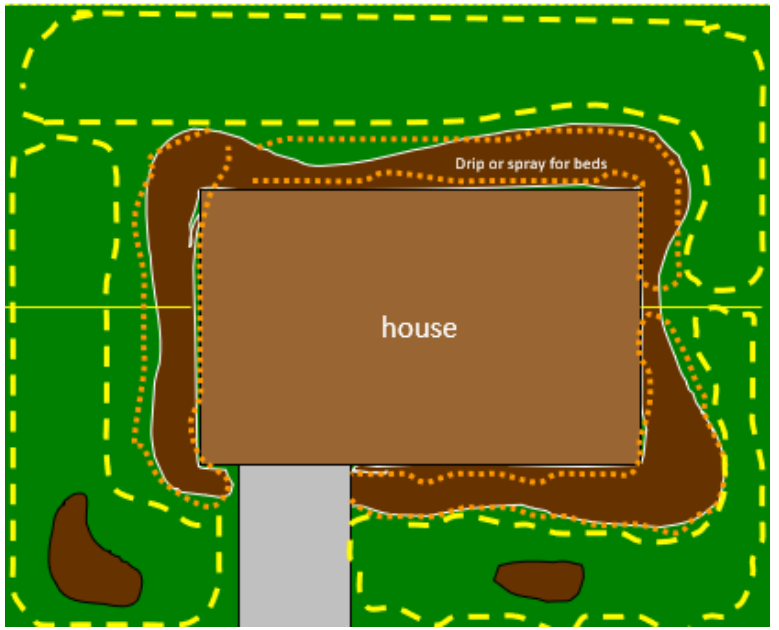
Planning & Plant Selection

- Right plant – Right place
  - Sun exposure
  - Spacing
  - USDA Hardiness zone
  - Soil type
  - Moisture needs
  - Disease/ Pest resistant
- Work with rather than against nature

Irrigation

- Hydrozoning - **Separate irrigation zones should be based on:**
  - Turf
  - Shrub/Flower beds
  - Vegetable Gardens
  - Exposure/Micro-climate conditions
  - Soil types

- Drip irrigation
  - Slow release of water
  - Less weeds in planter beds
  - Water delivered to roots



Pest Management

- Focus on *Prevention*
- Integrated Pest Management (IPM)
- Using a combination of methods to keep pest populations at a tolerable level
  - Environmentally friendly
  - Complements Organic Approach
  - Is not limited to Organic, using pesticides as last resort

- Identify before acting
- Accept some damage
- Use least-toxic solutions first


I SAW A BUG
38
imgflip.com

Diagnosing Plant Problems

- Insect
- Pathogen
- Environmental
- Chemical

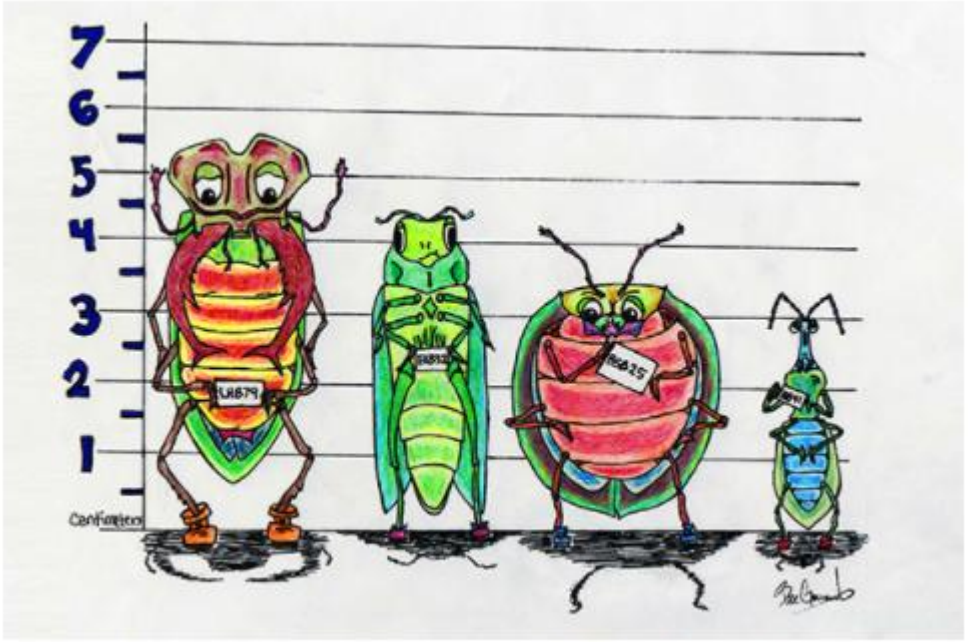


Fig. 1 Proper species identification is key to effective IPM.

Gerald J. Lenhard, Louisiana State University, Bugwood.org

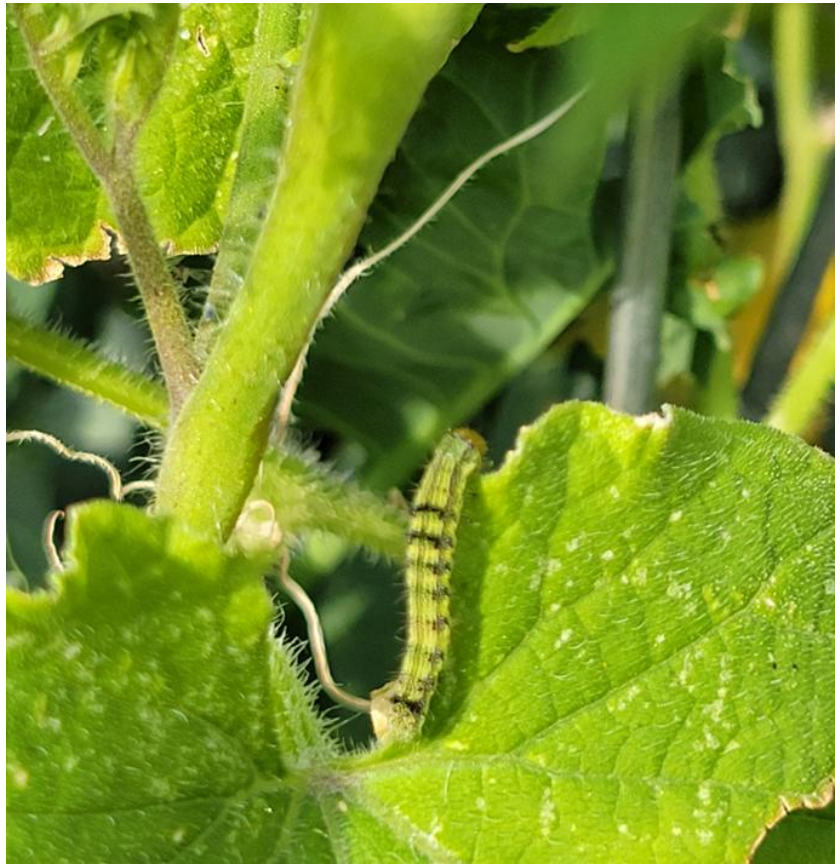
https://extension.usu.edu/pests/research/invasive-insect-lookalikes

Pest Management Options

- Cultural
  - Plant diversity
  - Crop rotation
  - Proper irrigation
  - Sanitation
- Mechanical
  - Physical barriers (row covers, mulch)
  - Monitoring
  - Trapping or hand-removal
- Biological
  - Attracting or releasing pest predators (ladybugs, praying mantis)
- Chemical
  - Used as last resort

Pest Monitoring

- Once/week early spring-early summer, & Twice/week through summer.
- **Visual**
  - Look for symptoms & signs
  - Look underneath leaves, along stems, on or around fruit)
  - Hand lens (10x-30x magnification), sweep net, beat cloth, containers for collecting unknown species
- **Trapping**



Traps for Monitoring

- Sticky surface for attracting specific pests
  - Colored background
  - Sex-attractant (pheromone)
  - Food lures
    - May attract pests to the area

Identification - Symptoms Vs. Signs

- Symptom: visible effect of the host in response to the pest
  - Stippled leaves, cat-facing, stunted growth, branch die-back, etc.

- Signs: physical evidence of the pest
  - Insect frass, insect presence, fungal spores, lesions, etc.

Cucumber, Whitney Cranshaw, Colorado State University, Bugwood.org

Whitney Cranshaw, Colorado State University, Bugwood.org

Cultural Control

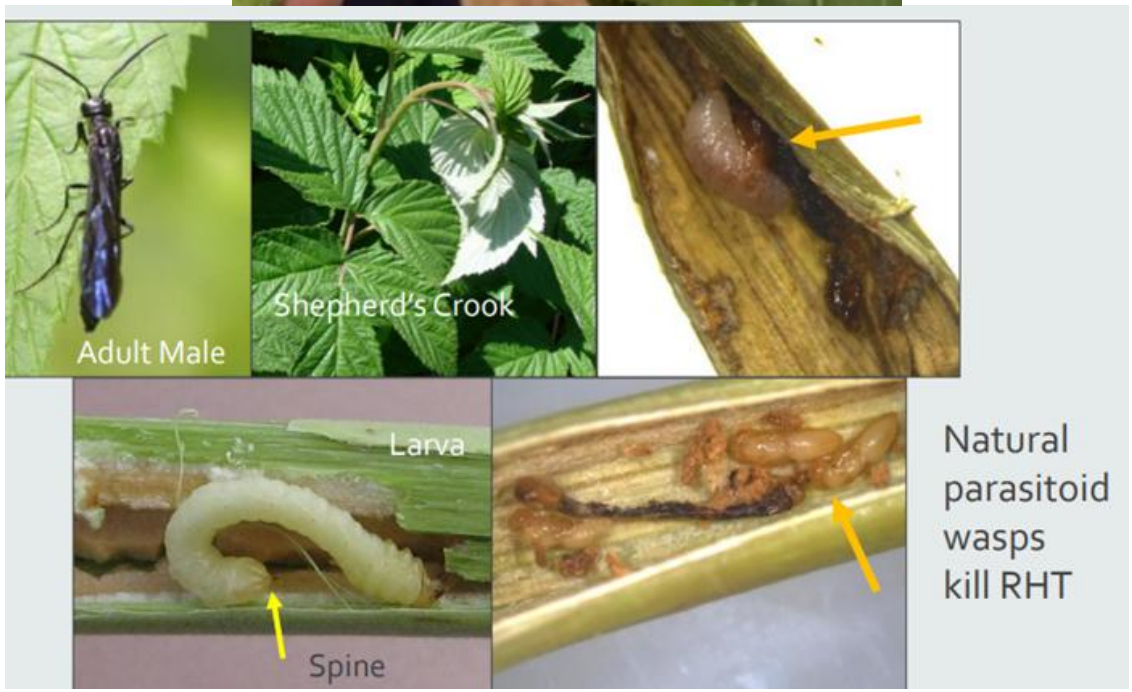
- Prevention
  - Crop rotation, companion planting
  - Soil, fertilization, irrigation
  - Trap crops, hedge rows
  - row covers, mulch
- Mechanical
  - Tilling, hoeing, or hand removal
- Biological
  - Beneficial insects, bacteria, nematodes

Mechanical Control

- Hand-removal (squash-bugs)
- Pruning
  - Infested or diseased plant parts

  e.g. Raspberry Horn Tail, Fire blight
- Remove dropped fruit

  e.g. codling moth



Exclusion

- Bagging apples (codling moth)
- Floating row covers (cabbageworm, flea beetles, thrips)
  - Placed prior to insect arrival
  - Does not prevent soil-emerging insects
  - Occasional removal (pollination, weeding)

Homemade Traps

- Homemade traps with baits
  - Codling moth
  - Slugs
  - Earwigs
  - Indoor fruit flies

Weed Management Without Chemicals

- Use drip irrigation where possible
- Use Mulch in planting beds
  - 2-4 inches
  - Organic – wood chips
  - Inorganic – plastic
- Mechanical removal – hand digging

Weed Management Without Chemicals

- Solarization – using the sun to kill weeds
  - Clear plastic tarp
  - Can take 4-6 weeks to months depending on season
  - Kills weeds and surface weed seeds
  - Can be harmful to soil microbes
  - Temporary effect on rhizomatous and tap-rooted weeds
- Flame
  - Kills annual weeds when small, and surface seeds
  - Don’t try organic mulch areas
  - Burning restrictions in some locations
  - Spring is best

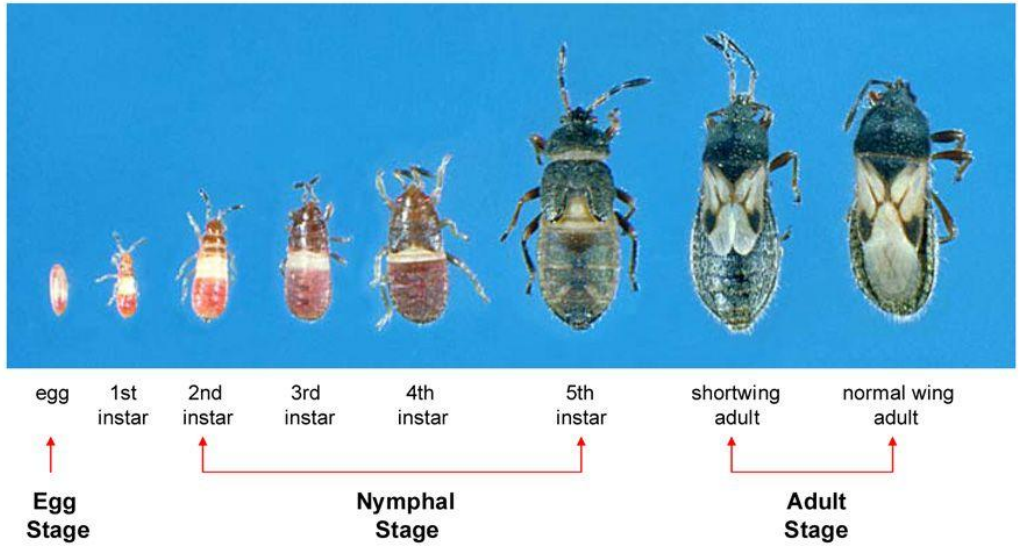
Timing – Act Early

“one ounce of prevention is worth a pound of cure”

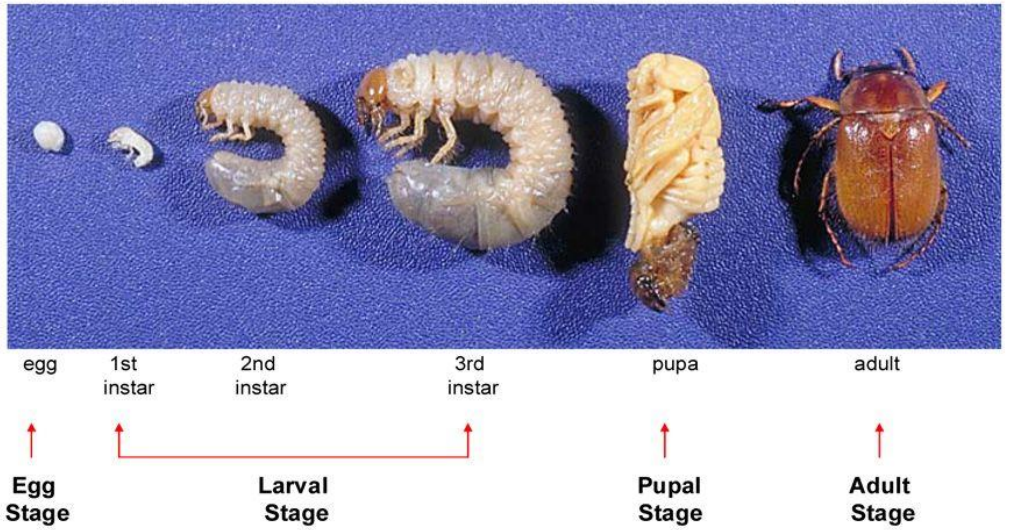
Timing – Life Stage

- Weeds
  - Remove before seed development
  - Spray in spring or fall for best results
- Insects
  - Spray during egg – laying and early developmental stage
- Fungus
  - Sanitation
  - Remove infected plant parts early
  - Apply plant-based oil as soon as signs appear (Neem oil)

Incomplete Life Cycle Example
(hairy chinch bug)



Complete Life Cycle Example
(northern masked chafer)



Pesticide Formulations and Materials

- Sprays –
  - Risk of inhalation and drift
  - RTU's (Ready to Use)
  - Concentrate (require mixing)
- Powders –
  - Convenient for hard-to-reach places, or under conditions when sprays could harm plants (e.g. high temperatures)
  - Frequent re-application
- Granules –
  - Larger than dusts
  - Applied to soil
  - Risk of consumption or contact with non-target organisms
- Baits –
  - Bait + Insecticide
  - Targets specific pests

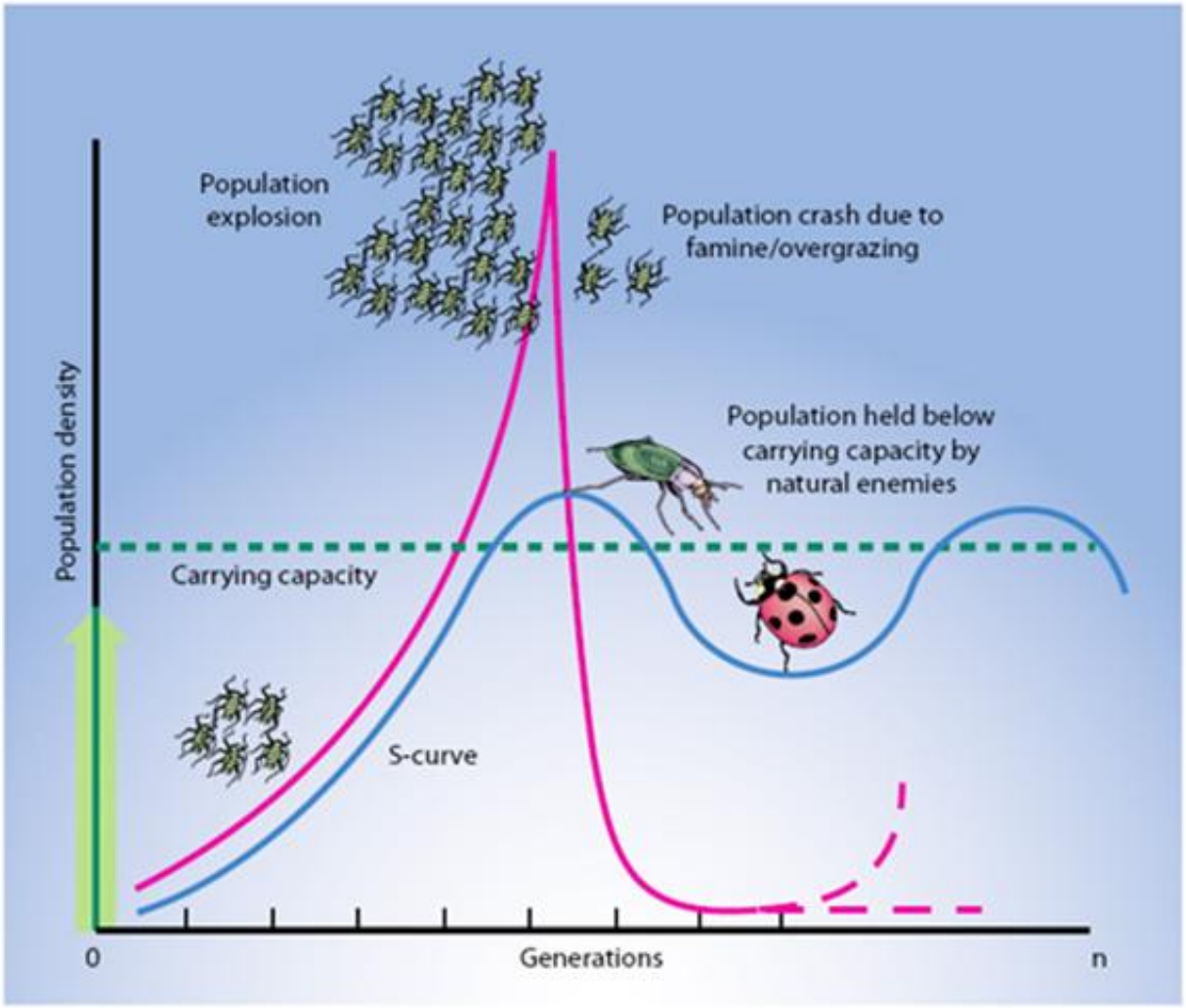
- Organic
  - Animal oil
  - Botanical
  - Mineral
  - Microbial
  - Petroleum sources
- Conventional/synthetic
- Restricted use
  - Pesticide Applicators License Required

Encouraging Beneficial Insect

- Predators and pollinators
- Diverse plantings
- Habitat and flowers
- Reduce chemical application
  - Even Organic pesticides can be harmful to beneficials

Common Natural Enemies

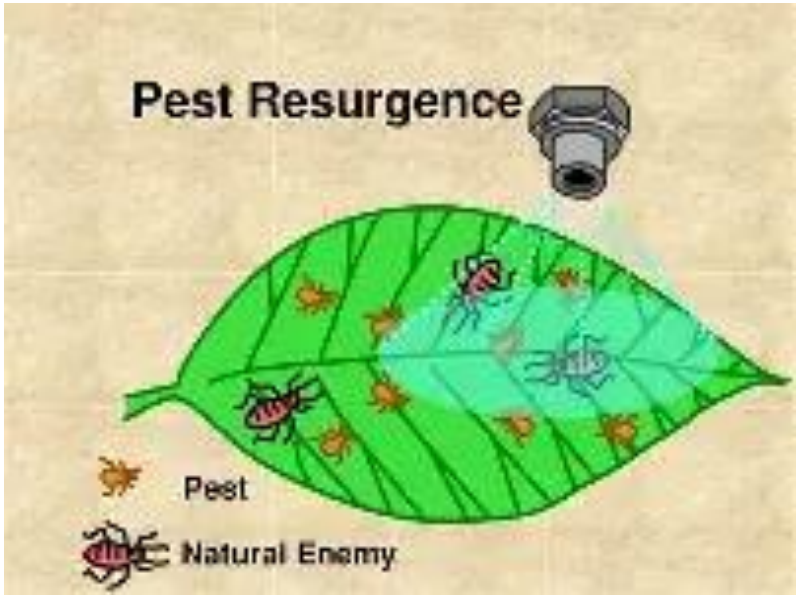
- Lady Beetles
- Lacewing Larvae
- Syrphid Fly (hover fly) Larvae
- Parasitoid Wasps

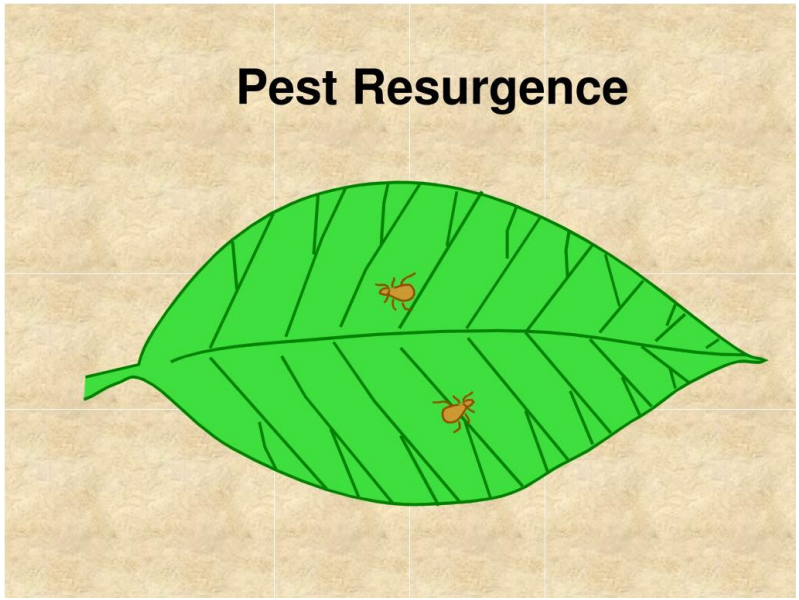


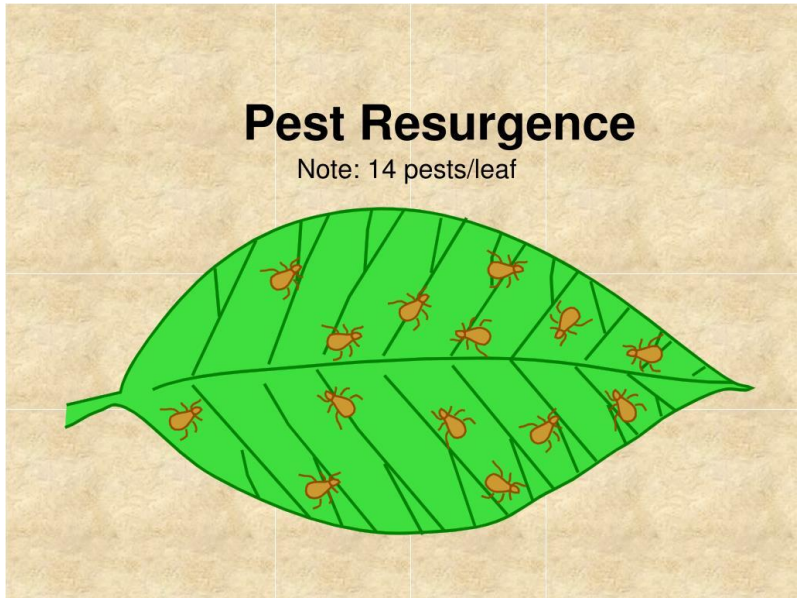
The role of natural enemies in the regulation of pest populations.

(Reprinted with permission from *Michigan Field Crop Pest Ecology*, Mich. State Univ. Extension Bulletin E-2704.)

Reduced Natural Enemies
Increased Pest Resistance to chemicals







Organic Pesticides

Key characteristics:

- **Natural Origin**: Ingredients are derived from renewable sources, such as neem oil from neem trees or pyrethrins from chrysanthemum flowers.
- **Biodegradability**: Most organic pesticides break down quickly in the environment, reducing residual toxicity.
- **Selective Action**: They often target specific pests, reducing collateral damage to beneficial organisms like bees and earthworms.
- **Low Toxicity**: Compared to conventional pesticides, organic alternatives generally have lower toxicity levels for humans and animals.

Examples:

- Insecticidal Soap (Safer)
- Horticulture Oil (Neem)
- Mineral (Diatomaceous Earth, Copper, Sulfate)
- Bacteria (Bacillus thuringiensis, Nolo Bait, Saccharopolyspora spinosa)

NOTE on Pesticides

- Brands often change ingredients
- Organic Pesticides can still be harmful
- ***Read The Label-it's the law
  - Before you by
  - Before you mix (if not RTU)
  - Before you apply
- Ex: Pre-harvest intervals, 3 of applications/year, target pests

Challenges and Mindset

- It takes time to see results
- Observation is essential
- Progress, not perfection
  - Start small

- Keeping an ecological sustainability mindset

Key Takeaways

- Healthy soil drives success
- Prevention beats reaction
- Diversity builds resilience

Resources

- Integrated Pest Management | USU
- Bing Videos (Organic YouTube by TOPP USU)
- PowerPoint Presentation (Perdue Extension)

Thank You

WEBER BASIN WATER
LEARNING GARDEN

Class Feedback

Monthly Newsletter